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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/085,903	02/28/2002	Andy Wei	AMD1:115\HON	4163
23858	7590	06/15/2004	EXAMINER	
TIMOTHY M HONEYCUTT ATTORNEY AT LAW P O BOX 1577 CYPRESS, TX 77410			LEE, HSIEN MING	
			ART UNIT	PAPER NUMBER
			2823	

DATE MAILED: 06/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/085,903	Applicant(s) WEI ET AL.	
	Examiner Hsien-Ming Lee	Art Unit 2823	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 15 April 2004.
- 2a) ☐ This action is FINAL.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-4, 6-17 and 20-33 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-4, 6-17, 20 and 28-33 is/are allowed.
- 6) ☒ Claim(s) 21 and 25-27 is/are rejected.
- 7) ☒ Claim(s) 22-24 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

*Hsien Ming Lee* 6/15/2004

## DETAILED ACTION

### *Remarks*

1. The objection to claim 7 is withdrawn.
2. Claims 1-4, 6-17 and 20-33 are pending in the application.

### *Claim Rejections - 35 USC § 103*

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 21 and 25-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshimi et al. (US 5,698,869).

In re claims 21 and 25, Yoshimi et al. disclose a circuit device, wherein the device comprises a gate electrode 205, comprising:

- a semiconductor-on-insulator substrate 201/202/Si layer having a device region 203/206/207;
- an impurity region 206/207 in the device region 203/206/207, the impurity region 206/207 defining a **singular** junction 215 (col. 4, lines 30-33); and
- a first dislocation region D1 (i.e. a region comprising a upper four dislocations, see attached figure) and a second dislocation D2 ( i.e. a region comprising a lower four dislocations, see attached figure) in the device region 203/206/207, the first D1 and second D2 dislocation regions are to traverse

the pn junction interface **215** over the drain region **206** and the channel region **203** (col. 4, lines 30-33).

The first dislocation region D1 and the second dislocation region D2 are extended in different non-parallel directions in space because D1 and D2 are in cross-section plane that extends in all different directions within the plane. Therefore, it would have been obvious to one of the ordinary skill in the art, at the time the invention was made, to appreciate that the first D1 and second D2 dislocation regions are non-parallel spatial relationship and traversing the p-n junction interface 215 for the aforementioned reasons.

In re claim 26, Yoshimi et al. also teach comprising a plurality of dislocation regions (i.e. the aforementioned first and second dislocation regions) traversing the pn junction 215.

In re claim 27, Yoshimi et al. also teach that the device region 203/206/207 comprises silicon because the device region comprises Si and Ge (col. 4, lines 15-30 and col. 2, lines 39-53).

***Allowable Subject Matter***

5. Claims 1-4, 6-17, 20 and 28-33 are allowed.
6. Claims 22-24 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
7. The following is a statement of reasons for the indication of allowable subject matter:

Yoshimi et al. to US 5,698,869 neither teach nor suggest forming a *buried* amorphous region in the device region; forming a source/drain *extension* region and

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*another* impurity region *overlapping* the source/drain extension region; and the first dislocation region traversing the *first junction* and the second dislocation region traversing the *second junction*.

***Response to Arguments***

8. Applicant's arguments with respect to claims 21 and 25-27 have been considered but are moot in view of the new ground(s) of rejection.

The examiner agree the argument that there should have two p-n junction interfaces 215 because source and drain regions are necessary to be separated to be a workable device, i.e. source and drain regions are not to get shorted.

However, in this new ground rejection, using the same reference, the first dislocation region D1 is redefined as the region includes the upper four dislocations whereas the second dislocation region D2 is redefined as the region includes the lower four dislocations. The first dislocation D1 and the second dislocation D2 are extended in different non-parallel directions in space and traversing the p-n junction interface 215, as stated above. Claim 21 is too broad to patentably distinct from the cited reference. If applicant intends to claim that the first and second dislocation regions extend in a particular direction and are non-parallel in space, then such limitations need to be clearly recited in the claim.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hsien-Ming Lee whose telephone number is 571-272-1863. The examiner can normally be reached on M-F (9:00 ~ 5:00).

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Olik Chaudhuri can be reached on 571-272-1855. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Hsien-Ming Lee  
Primary Examiner  
Art Unit 2823

June 10, 2004

*Hsien Ming Lee*  
*6/10/2004*

attachment

FIG. 7

dislocations  
extend to different  
directions

